

We Claim:

1. Transponder with an antenna and an electronic control  
5 circuit and comprising a metallic enclosure, wherein the  
antenna and the electronic control circuit are contained in  
a hermetical metallic enclosure.

2. Reader with an antenna and comprising an enclosure,  
10 wherein the antenna is protected from the environment by a  
metallic front plate that is integral with the enclosure  
containing the electronic control circuit.

3. Reader according to claim 2, wherein said enclosure  
15 comprises a hermetical closure.

4. Transponder or reader according to claim 1 or 2,  
wherein the enclosure is made of stainless steel with a wall  
thickness between 0.2 and 0.5 mm and the frequency of the  
20 carrier wave is comprised between 20 and 50 kHz.

5. Transponder or reader according to claim 1 or 2,  
wherein the antenna coils are rectangular in cross-section  
with the large side of the coil closely coupled to the  
25 metallic wall of the enclosure.

6. Transponder or reader according to claim 5, wherein an  
air gap is provided at the rear of said coils, opposite the  
enclosure or opposite the ferrite element.

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7. Transponder and reader according to claim 1 or 2,  
wherein the resonance frequency of the antenna is 5 to 20 %  
higher than that of the carrier.

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8. Transponder and reader according to claim 1 or 2, wherein the Q factor of the resonant antenna is degraded in a controlled manner by a resistance.
- 5 9. Reader according to claim 2, wherein the reception circuit is preceded by a differentiating filter.

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